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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/613,419	07/03/2003	Chih-Chun Feng	03169-UPL	5110

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EXAMINER

WILLIAMS, LAWRENCE B

ART UNIT	PAPER NUMBER
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2611

MAIL DATE	DELIVERY MODE
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05/14/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary	Application No. 10/613,419	Applicant(s) FENG ET AL.	
	Examiner Lawrence B. Williams	Art Unit 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10-36 is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-6 and 8 is/are rejected.
- 7) ☐ Claim(s) 4, 7, 9 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3, 5-6, 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Corral US 2004/0086054 A1 in view of Abousleman US Patent 6,717,990 B1).

(1) With regard to claim 1, Corral discloses in Fig. 8, a method for protecting and transmitting the side information related to peak-to-average power ratio (PAPR) reduction in a multicarrier system, comprising the steps of: (a) performing multicarrier modulation for data to be transmitted and generating a data modulated signal (modulator 804, multicarrier modulation inherent since the signal is OFDM (pg. 7, paragraph 0096), then executing a procedure related to said PAPR reduction (PAPR Reduction Apparatus, 100); (c) allocating a plurality of sub-carriers for transmitting said side information (pg. 4, paragraph 0059); (d) performing multicarrier modulation for said side information (108) and generating a side information modulated signal (pg(s) 1-2, paragraph 0017; pg. 4, paragraph 0059); and (e) attaching said side information modulated signal to said data modulated signal for generating a transmitted signal (Side Information Inserter, 106); wherein said PAPR reduction procedure is based on either a PAPR level of said data modulated signal or that of said transmitted signal (pg. 7, paragraph 0095).

Corral does not teach encoding of the side information for generating coded side information. However, Abousleman teaches encoding of side-information (col. 5, lines 44-46).

Thus it would have been obvious to one skilled in the art at the time of invention to incorporate the teachings of Abousleman as a method of detecting and correcting errors in the side information.

(2) With regard to claim 2, Abousleman also discloses the method for protecting and transmitting the side information related to PAPR reduction in a multicarrier system as claimed in claim 1, wherein said encoding said side information is implemented through an error-correction coding procedure (col. 5, lines 44-46). Thus it would have been obvious to one skilled in the art at the time of invention to incorporate the teachings of Abousleman as a method of detecting and correcting errors in the side information.

(3) With regard to claim 3, Corral also discloses the method for protecting and transmitting the side information related to PAPR reduction in a multicarrier system as claimed in claim 1, wherein said PAPR reduction procedure is based on either the PAPR level of said data modulated signal or that of said transmitted signal to determine PAPR reduction parameters (pg. 6, paragraph 0085; pg. 7, paragraph 0095).

(4) With regard to claim 5, Though Corral does not explicitly teach the PAPR reduction procedure is a partial transmit sequence method, he does teach that hid technique is applicable to existing implementation (pg. 3, paragraph 0045)

(5) With regard to claim 6, Corral also discloses the method for protecting and transmitting the side information related to PAPR reduction in a multicarrier system as claimed in claim 3, wherein said PAPR reduction procedure is based on the PAPR level of said data modulated signal, and said steps (d), and (e) are performed after said PAPR reduction parameters have been determined (pg. 6, paragraph 0085). As noted, Corral does not teach the step of

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encoding the side information signal. However, Abousleman teaches encoding of side-information (col. 5, lines 44-46). Thus it would have been obvious to one skilled in the art at the time of invention to incorporate the encoding of the side-information as taught by Abousleman as a method of detecting and correcting errors in the side information at the receiver.

(6) With regard to claim, 8, Corral also discloses the method for protecting and transmitting the side information related to PAPR reduction in a multicarrier system as claimed in claim 3, wherein said PAPR reduction procedure is based on the PAPR level of said transmitted signal (pg. 4, paragraph 0064), and said steps (b), (d), and (e) are performed during said PAPR reduction procedure (pg(s). 5-6, paragraph 0085). As noted, Corral does not teach the step of encoding the side information-signal. However, Abousleman teaches encoding of side-information (col. 5, lines 44-46). Thus it would have been obvious to one skilled in the art at the time of invention to incorporate the encoding of the side-information as taught by Abousleman as a method of detecting and correcting errors in the side information at the receiver.

Allowable Subject Matter

3. Claims 10-36 are allowed.

4. Claims 4, 7 and 9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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5. The following is a statement of reasons for the indication of allowable subject matter:

The instant application discloses a method for protecting and transmitting the side information related to peak-to-average power ratio (PAPR) reduction in a multi-carrier system. A search of prior art records has failed to teach or suggest, alone or in combination:

“a method for protecting and transmitting the side information related to peak-to-average power ratio (PAPR) reduction in a multicarrier system, comprising the steps of: (a) performing multicarrier modulation for data to be transmitted and generating a data modulated signal, then executing a procedure related to said PAPR reduction; (b) encoding said side information and generating two groups of coded side information; (c) allocating two groups of a plurality of sub-carriers for transmitting said two groups of coded side information respectively; (d) combining one of said two groups of coded side information with said data modulated signal; (e) modulating the other group of said two groups of coded side information and generating a side information modulated signal; and (f) attaching said side information modulated signal to said data modulated signal for generating a transmitted signal; wherein said PAPR reduction procedure is based on either a PAPR level of said data modulated signal or that of said transmitted signal” as disclosed in claim 10.

“an apparatus for protecting and transmitting the side information related to peak-to-average power ratio (PAPR) reduction in a multicarrier system, comprising: a multicarrier modulator for modulating data onto multiple sub-carriers and generating a data modulated signal, wherein said multicarrier modulator comprises a PAPR reduction device to reduce a PAPR level of said data modulated signal and reserves a plurality of sub-carriers for protecting and transmitting said side information; a side information coding and modulation device for coding

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and modulating said side information onto said plurality of sub-carriers and generating a side information modulated signal; an adder for combining said data modulated signal and said side information modulated signal, and generating a transmitted signal; and a parameter control device for PAPR reduction for determining said side information according to the PAPR level of said data modulated signal” as disclosed in claim 19.

an apparatus for protecting and transmitting the side information related to peak-to-average power ratio (PAPR) reduction in a multicarrier system, comprising: a multicarrier modulator for modulating data onto multiple sub-carriers and generating a data modulated signal, wherein said multicarrier modulator comprises a PAPR reduction device to reduce a PAPR level of said data modulated signal and reserves a plurality of sub-carriers for protecting and transmitting said side information; a side information coding and modulation device for coding and modulating said side information onto said plurality of sub-carriers and generating a side information modulated signal; an adder for combining said data modulated signal and said side information modulated signal, and generating a transmitted signal; and a parameter control device for PAPR reduction for determining said side information according to the PAPR level of said data transmitted signal” as disclosed in claim 28.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a.) Bruekers et al. discloses in US 2002/014040586 A1 Efficient Coding Of Side

Information In A Lossless Engine.

b.) Moon discloses in US 6,888,804 B1 Apparatus And Method For Inserting Side

Information In Communication System.

c.) Weissman discloses in IEEE Transactions on Information Theory On Source Codes
With Side Information.

d.) Feng et al. discloses in Vehicular Technology Conference Protection and
Transmission of Side Information for Peak-to-Average Power Ratio Reduction of an OFDM
Signal Using Partial Transmit Sequences.

e.) Cimini, Jr. et al. discloses in US Patent 6,556,577 B1 Method and system For
Reducing of Peak-To-Average Power Ratio of Transmission Signals Comprising Overlapping
Waveforms.

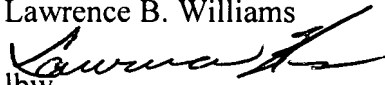
7. Any inquiry concerning this communication or earlier communications from the
examiner should be directed to Lawrence B Williams whose telephone number is 571-272-3037.
The examiner can normally be reached on Monday-Friday (8:00-6:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's
supervisor, Ghayour Mohammad can be reached on 571-272-3021. The fax phone number for
the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lawrence B. Williams



lbw

May 7, 2007



MOHAMMED GHAYOUR
SUPERVISORY PATENT EXAMINER